1943 ✓ 17th

UNITED STATES DEPARTMENT OF AGRICULTURE

FOREST SERVICE

FIFTEENTH ANNUAL REPORT

OF THE

CENTRAL STATES FOREST EXPERIMENT STATION

FOR THE YEAR 1943

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REPORTS
Station's Annual

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Fifteenth Annual Report
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Central States Forest Experiment Station
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REQUIREMENTS, PRODUCTS AND SUPPLIES

RPS work occupied the entire Station staff during the first half of the calendar year, but with initiation of the Timber Production War Project a realignment of personnel was possible, which permitted a part of the staff to return to their regular work. An understanding was worked out with the Timber Production War Project of Region Nine to collect RPS statistics. RPS men assumed TPWP responsibilities within adjusted project areas. Three of the six RPS men employed by the Station on a duration basis during 1942 were released directly to TPWP. Two of these became acting area foresters and one a project forester. As the organization is now constituted, all contacts whether for TPWP or RPS purposes are made by the same individual, and the advantages of this procedure was the main consideration in reaching the decision that a close correlation of the two types of work was desirable.

On the whole, the new method for obtaining RPS information has worked fairly well. We have been able to meet deadlines for routine reports such as the quarterly factors and mill stocks reports and the monthly lumber production reports. Although there has been some increase in difficulty in getting reports in on time from the field, basic data from five of the seven States continues to come in about as well as it did prior to the change in organization. Two of the States

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represent weak spots which require some little continuous pressure in order to keep performance up to par. The situation has lately improved to some extent as a result of field contacts with project and area foresters, both on the part of this Station and on the part of Regional personnel.

There is some doubt, however, as to how much additional RPS work could be efficiently carried on by the present organization. If the equipment survey should be attempted and the breakdown by major products such as ties, dimension, boards and timbers should be required from the monthly reporting sample mills, there is some doubt of the present organization working effectively. For this reason we are seriously considering the assignment of our RPS men in Missouri, Kansas and Nebraska, and Illinois to the State offices of the Area Foresters. This would involve moving Malcolm to Jefferson City, Missouri; Campbell from Beatrice, Nebraska to Ames, Iowa; and Richman from Hillsboro, Illinois to Springfield. We would also need to finance an additional man for the State of Indiana which has thus far been without an RPS man in residence. These men would function as our representatives in the Area Forester's office, and their presence there would assure better consideration of RPS needs, especially those matters not of a routine nature.

The possibility of this change has been discussed with the Region, which at present is somewhat favorably inclined toward the idea although no definite decision has been reached. The fact that three TPWP project forester positions would have to be filled if our men were moved to area foresters' offices will be a major consideration affecting their decision. It is doubtful if the change can be effected within present WPB allotments because one additional RPS man would need to be taken on. Also,

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there is little reason for making the change unless additional RPS jobs are to be allotted to the Station. No final decision can be reached pending further developments on these two points.

In several fields RPS work was of considerable value during 1943. One of the most useful but probably less well recognized functions performed by this project was the extent to which it served as a balance wheel against rumors and extravagant claims on production trends. Reports of monthly lumber production particularly did much to keep opinion both within and without the profession on a fairly even keel, and several ill-founded rumors regarding large increases in mill idleness and falling production gained little headway in the face of factual statements. This alone undoubtedly did much to modify or reduce the number of ill-founded proposals for remedial action that would otherwise have reached various Federal agencies such as WPB and OPA.

Completion of the 100-percent canvass of sawmills in Station territory early in 1943 gave the first complete picture ever obtained of the industry in this territory. Aside from the accurate base it provided for RPS work, this survey allowed the Timber Production War Project to begin productive work immediately where otherwise several months would have been required to obtain a knowledge of the industry in the territory of each project forester.

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Station personnel as a whole has benefited from the new contacts which have given an opportunity to gain a better appreciation of practical problems of marketing and utilization. There has also been a small but significant improvement in understanding on the part of industry regarding the forester's viewpoint which has resulted from these contacts.

FOREST MANAGEMENT

With realignment of RPS work accomplished by August, four of the staff were able to take up uncompleted work in management. The remainder of the year was spent in making overdue reexaminations of field experiments in planting, Ozark direct seeding and stand improvement work, and in summarizing and organizing results of these experiments in anticipation of needs during the postwar period. Other work temporarily laid aside was also picked up. Included were the 1941 grade recovery studies

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of North Arkansas pine and oak, board-foot growth and yield tables for plantation black walnut (an incomplete part of the manuscript on growth, yield and management of planted walnut stands), nursery soil management with respect to growing shortleaf and pitch pine stock and site evaluation from a soils angle for several important species.

In planting, direct seeding, stand improvement and soils work the chief objective of the realigned program is to formulate as specific recommendations as possible from results of studies for practical application in the field by men responsible for work programs. It is planned that the final compilation will consist of (1) recommendations for forest planting and (2) recommendations for stand improvement operations in the Ozarks. Both will be as complete as present information will justify. Nursery practice, stock grading, stock handling, and field planting and direct seeding will be bracketed under regeneration. Timber stand improvement will include altering of stand composition through planting, and release from overstory of natural and planted seedlings of pine and will pertain to the Ozark region.

Some rather significant results have been noted in the examinations of plots which have been in process of development during the past two or three years. Chief among these were tests dealing with stock grades of 1-0 shortleaf pine, response of planted hardwoods in different covers, and direct seeding of shortleaf pine in Missouri. Planting stock from three nurseries over a period of years has given uniform survival and growth responses by grades based on seedling height and caliper. Results will serve as a basis for standardizing grading, for stock distribution to different qualities of planting sites, and for setting a more definite objective in nursery production.

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Series of plots in southern Illinois and Ohio, designed to test relative values of old-field covers in which to establish hardwood species, now point to definite progress in the use of hardwoods in reforestation. Growth rate was best under planted black locust, decreasing through natural sassafras, planted pine, and old-field grass and herbaceous cover. For example, 3-year height growth in the four types of cover just mentioned were, for planted yellow poplar, 7.5, 3.6, 2.9 and 1.9 feet respectively.

Seed spotting of shortleaf pine may be regarded as a supplement to planting in forest soils in the pine range of Missouri when it is restricted to average or better sites. Several experiments testing season of seeding, degrees of release from overstory, and time of release, resulted in 92 percent of the spots with one or more seedlings established when December seeding was concurrent with 100-percent girdling of the overstory. No less than 65 percent stocking of spots was obtained under similar treatment during an adverse growing season when a wet spring was succeeded by an abnormally dry summer. Growth rate of seedlings compare favorably with that of planted stock.

Present stocking of shortleaf pine reproduction in the Missouri stands of inferior oak is too low. Systematic studies, in which seed germination and seedling survival were observed in simulated natural seeding, have indicated that increased regeneration is feasible and that an appraisal of seed tree requirements is needed. An over-all mean of 2.5 percent of the viable seed broadcast on study plots produced seedlings which were surviving after five years in open stands. At this rate, about three-fourths pound (approximately 40,000 seed) of seed produced per acre would result in 4,800 seedlings in one year of which about 1,000 would survive to the fifth year.

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Compilation of lumber grade recovery data collected on the Sylamore Experimental Forest in 1941 was completed and a preliminary manuscript routed to Regions 8 and 9 for comments. In general results showed very low recovery values for the north Arkansas mixed oak and somewhat lower recovery values for shortleaf pine than was found for Ouachita mountain shortleaf pine in earlier studies by the Southern Station. In addition to north Arkansas it is expected that this study when completed will be of value in the Missouri Ozark area where both pine and mixed oak timber exhibit qualities somewhat similar to that of the northern Arkansas mountains.

Some progress was also made in planning revision of the plantation black walnut manuscript. One troublesome feature was cleared up, i.e. the lack of board-foot yields and growth. Review of the data available showed that although board-foot yield figures were limited in quantity they did provide a fair basis for growth prediction. An unusual feature on growth was developed which allowed for evaluating the effects of grazing and original spacing on yield. For example, lightly grazed and ungrazed plantations showed an average board-foot yield 17 percent in excess of all plantations. Original spacing was also found to exert a major influence on yield. Spacings of 4x4 or less resulted in 40 percent less yield than the average of all plantations with spacings of 9x9 and 10x10 showing 60 percent greater yields than the average for all. Spacings falling between these two extremes showed intermediate yield corrections. With the war creating great interest in the planting and growing of black walnut both on the part of the industry and farmers early completion of the study on yield, site requirements and management of this species is planned for completion in 1944.

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FARM FORESTRY

Two new farm forestry research projects were started and one completed during 1943.

The Ohio Forest Survey, in part supported by farm forestry research funds, closed for the duration during the year with surveys completed for 38 of the State's 88 counties. With this information as a basis, plus data from National Forest acquisition records and other sources, a progress report for the State of Ohio is to be prepared for popular consumption. Statistical presentation has been held to a minimum and used primarily as background for discussion of forest problems of the State, suggested solutions, and a long-range forest program. During the summer of 1943 the Station put a great deal of effort into assisting in the preparation of this report, three of the five sections being prepared almost solely by Station members. RPS information was drawn on to a considerable extent for discussions of the section on forest economics. The title of the report will be "Ohio's Forest Resources." Ten thousand copies will

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be published. With this project completed, farm forestry research for Ohio under the Norris-Doxey program ceased in 1943.

The two new projects approved for the Central States territory were begun in cooperation with the Forestry Department at Iowa State College and the Forest School at Purdue University. The two projects complement each other in that both are concerned with determinations of lumber grade recovery from logs and trees of different sizes. Complete lack of information of this kind has left public foresters and others without a sound basis for stumpage appraisals and has also been a handicap in efforts to develop realistic tree classifications.

Progress on both studies has not been as satisfactory as was originally hoped for. Personnel assigned to the study at Ames was also assigned to the Timber Production War Project which interrupted progress on the grade recovery job. Present indications are that all the essential field data for the three most important species in Iowa, red oak, elm and cottonwood, will be collected by the end of fiscal year 1944. However, compilation of the data and preparation of a report will have to be accomplished next year.

Collection of field data in the Indiana study has been fairly good. However, one of the two men assigned to the study left in the fall of 1943 for graduate work at the University of Michigan, and the second of the two men working on this job will probably accept a position with the American Forestry Association as regional director of their survey for the central region. In spite of these difficulties, however, a recent review of the situation indicates that sufficient data will be available for grade recovery averages on two of the leading Indiana species, and

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Present plans contemplate publication of this material in bulletins to be printed by the cooperating agencies with co-authorship credited to the Forest Experiment Station. It is not planned at this time to carry the results of these studies into tree classification, although it may be possible to do this on a preliminary basis with the Iowa data. The major objective of these bulletins will be to present the grade recovery data for logs of different sizes within well-defined log grades. These data will provide a part of the basic information necessary to more realistic appraisals of stumpage values, and will also be a very useful tool for continuation of farm woods economic and management research.

FOREST ECONOMICS

Progress in completing the study of farm woodland economics gives promise of completion of this phase of economics work early in 1944. The proposed bulletin will present evidence clarifying the economic and intangible contributions of woodlands to the farm enterprise and offers many suggestions for specific forestry activities applicable to farm conditions.

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Articles Published

Liming, Franklin G., and B. F. Seizert — Relative height growth of planted shortleaf pine and cut-back and uncut hardwood reproduction after release. Jl. For., Vol. 41, No. 3. March 1943.

Barrett, Chapman, Day, et al — Ohio's Forest Resources. ('44?) Published by Ohio Agricultural Exp. Sta. in cooperation with C.S.F.E.S.

Mimeographed Articles

Kellogg, L. F. — Preliminary report on lumber production for 1942 in IOWA. Central States For. Exp. Sta. Tech. Note 56. 9-15-43. 5 pp. (Mimeo.)

_____ — Preliminary report on lumber production for 1942 in OHIO. Central States For. Exp. Sta. Tech. Note 57. 9-15-43. 5 pp. (Mimeo.)

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_____ — Preliminary report on lumber production for 1942 in MISSOURI. Central States For. Exp. Sta. Tech. Note 59. 9-15-43. 5 pp. (Mimeo.)

_____ & Richmond — Preliminary report on lumber production for 1942 in ILLINOIS. Central States For. Exp. Sta. Tech. Note 60. 10-1-43. 6 pp. (Mimeo.)

_____ — Preliminary report on lumber production for 1942 in KANSAS. Central States For. Exp. Sta. Tech. Note 61. 10-1-43. 5 pp. (Mimeo.)

_____ — Preliminary report on lumber production for 1942 in NEBRASKA. Central States For. Exp. Sta. Tech. Note 62. 10-1-43. 4 pp. (Mimeo.)

Articles Submitted for Publication

Auten, John T. — Response of shortleaf and pitch pines to soil amendments and fertilizers in newly established nurseries in the Central States. (Jl. Agr. Res.)

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Chapman, A. G.	Shortleaf pine nursery stock classes in forest planting in the Missouri Ozarks. (Jl. of For.)
Liming, Franklin G., and John P. Johnston	Reproduction in oak-hickory forest stands of the Missouri Ozarks. (Jl. of For.)

Manuscripts Proposed for Completion in 1944

Auten, J. T.	An analysis of site factors associated with growth of black locust, black walnut, and yellow poplar.
_____	Some base-exchange studies in old growth forest soils.
_____	Relative values of sassafras, black locust, and pines in effecting changes in old-field soils.
_____	Soil building and hardwood regeneration under old-field pine in Vinton County, Ohio.
Chapman, A. G.	Shortleaf pine stock grades and their evaluation on the basis of field performance.
_____	Relative influences of old-field, sassafras, pine, and black locust covers on plantings of five hardwoods.
_____	Evaluation of old field covers for the establishment of shortleaf pine plantings.
Chapman, A. G., Auten, J. T., Liming, F. G.	Recommendations for planting, direct seeding and stand improvement in the Central Region. (To be multilithed.)
Cummings, W. H.	Nutrition of black locust in fertilized field plantings.
Kellogg, L. F.	Yield, site requirements and management of planted black walnut in the Central States.
Kellogg, L. F., and John G. Kuenzel	Lumber grade recovery from shortleaf pine and mixed oak in northern Arkansas.
Liming, Franklin G.	Seed spotting shortleaf pine in Ozark forest soils.
_____	Response of shortleaf pine to overhead release.

Outlook for managed Ozark Forest is good.

Chapman, A. G.	Shortleaf pine nursery stock classes in forest planting in the Missouri Ozarks. (Jl. of For.)
Liming, Franklin G., and John P. Johnston	Reproduction in oak-hickory forest stands of the Missouri Ozarks. (Jl. of For.)

Manuscripts Proposed for Completion in 1944

Auten, J. T.	An analysis of site factors associated with growth of black locust, black walnut, and yellow poplar.
_____	Some base-exchange studies in old growth forest soils.
_____	Relative values of seasafres, black locust, and pines in effecting changes in old-field soils.
_____	Soil building and hardwood regeneration under old-field pine in Vinton County, Ohio.
Chapman, A. G.	Shortleaf pine stock grades and their evaluation on the basis of field performance.
_____	Relative influences of old-field, seasafres, pine, and black locust covers on plantings of five hardwoods.
_____	Evaluation of old field covers for the establishment of shortleaf pine plantings.
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Liming, Franklin G., and J. Milton Attridge	Effects of seed-bed preparation and release on establishment of shortleaf pine in Missouri.
McLintock, T. F., and John J. Van Akkeren	Direct seeding of pine under old-field conditions in southeastern Ohio.
Worthington, Robert E., and Burt P. Kirkland	The functions of woodlands in Corn Belt farm economy.

Addresses

Chapman, A. G.	Timber marking in farm woodlot management. Delivered before City Farmers Club, Cincinnati, Ohio, Dec. 15, 1943.
Auten, John T.	Classification of soil factors as a means of forest site determination. Delivered before Forest Soil Subsection, Soil Science Society annual meeting, Nov. 12, 1943, Cincinnati, Ohio.
	Farm woodland and water supplies. Radio talk, March 5, 1943, Station WOSU, Ohio State University.
Barrett, Leonard I.	Community forests vs. parks as war memorials. Delivered before Clark County Historical Society, Aug. 25, 1943, Springfield, Ohio.
	Preventing farm lumber shortages. Radio talk, Feb. 5, 1943, Station WOSU, Ohio State University.
	Lumber production and production problems in the Central States. Delivered before Central States Section, Society of American Foresters, Nov. 6, 1943, Ann Arbor, Michigan.

1/ Robert E. Hemer - Military furlough.
2/ Walter S. Krysiak - Military furlough.
3/ Position filled by various student laborers.
4/ Sched. A-1-6 employees.
5/ Transferred to R-9 - TPNP - August 1943.

Liming, Franklin G., and J. Milton Attridge — Effects of seed-bed preparation and release on establishment of shortleaf pine in Missouri.

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Station Personnel

Administration

Leonard I. Barrett	Director
Berniece D. Dillon	Jr. Adm. Asst.
Charlotte D. Huston	Clerk - Typist
Vacant [1]	Statistical Clerk
Mildred C. Breese	Asst. Clerk - Typist
Jeanne F. Grosh	Asst. Clerk - Steno.
Cecil L. Stauder	Jr. Clerk - Typist
Ruth M. Shawaker	Under Clerk [4]
Vacant [2]	Messenger
——— [3]	Janitor [4]

Forest Management

Arthur G. Chapman, In Charge	Sr. Silviculturist
John T. Auten	Silviculturist
Leonard F. Kellogg	Silviculturist
Franklin G. Liming	Assoc. Silviculturist
Vacant	Asst. Silviculturist

Forest Economics

Robert E. Worthington	Forest Economist

FOREST PRODUCTS

Requirements and Supplies Surveys

Ralph K. Day, In Charge	Silviculturist
Richard B. Campbell	Asst. Forester
Thomas F. McLintock	Asst. Forester
Fredrick B. Malcolm	Asst. Forester
Hugo W. Richman	Asst. Forester
Eugene W. Fobes [5]	Asst. For. Economist
Milton G. Hoyer [5]	Asst. For. Economist
Richard D. Lane [5]	Jr. Forester

[1] Robert E. Emmer - Military furlough.
[2] Walter S. Krysiak - Military furlough.
[3] Position filled by various student laborers.
[4] Sched. A-1-6 employees.
[5] Transferred to R - 9 - TPWP - August 1943.

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Ruth M. Shewaker	Under Clerk [4]
Vacant [2]	Messenger
——— [3]	Janitor [4]

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Leonard F. Kellogg	Silviculturist
Franklin G. Liming	Assoc. Silviculturist
Vacant	Asst. Silviculturist

Forest Economics

Robert E. Worthington	Forest Economist

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Requirements and Supplies Surveys

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Fredrick B. Malcolm	Asst. Forester
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(This sheet only for Asst. Chief, W.O. only)

FINANCIAL REPORT
(Based on F.Y.1944 Budget)

1. Direct and indirect costs by financial projects

Financial project	Indirect project costs	Direct project costs	Total costs
Forest Management	15,588	12,955	28,543
Forest Economics	5,636	3,230	8,866
Sub-total	21,224	16,185	37,409
Census	91	1,109	1,200
Farm Forestry	-	2,812	2,812
Work Fund, WPB: Products-Supplies	4,599	29,690	34,289
GRAND TOTAL	25,914	49,796	75,710

2. Distribution of direct costs by main projects

Financial and work project	Car maintenance	Scientific equipment and project supplies	Travel expenses other than cars	Salaries Regular	Salaries Temporary	Total
Forest Management						
Silviculture	250	30	275	6,280	-	6,835
Mensuration	-	-	-	420	-	420
Regeneration	100	20	175	5,405	-	5,700
TOTAL	350	50	450	12,105	-	12,955
Forest Economics						
Farm Woodlands	50	-	155	3,025	-	3,230
Coop. Farm Forestry						
Indiana	18	200	582	-	1,462	2,262
Iowa	157	-	393	-	-	550
TOTAL	175	200	975	-	1,462	2,812
Work Fund, WPB						
Products-Supplies	3,260	100	2,905	23,425	-	29,690
Lumber Census	200	-	275	634	-	1,109
TOTAL	4,035	350	4,760	39,189	1,462	49,796

(This sheet sent to
Asst. Chief, W.O. only)

FINANCIAL REPORT
(Based on F.Y.1954 Budget)

1. Direct and indirect costs by financial projects

Financial project	Indirect project costs	Direct project costs	Total costs
Forest Management	16,388	12,255	28,643
Forest Economics	5,856	3,280	9,136
Sub-total	21,264	16,135	37,779
Cameras	91	1,109	1,200
Farm Forestry	-	2,812	2,812
Work Fund, WPB:			
Products-Supplies	4,389	29,650	34,039
GRAND TOTAL	25,744	48,796	73,710

2. Distribution of direct costs by main projects

Financial and work projects	Cameras	Scientific equipment and supplies	Travel and transportation of men	Regular	Salaries Temporary	Salaries All	Total
Forest Management							
Silviculture	280	80	275	6,280	-		6,835
Mensuration	-	-	-	450	-		450
Regeneration	100	80	175	5,405	-		5,760
TOTAL	380	80	450	12,135	-		12,985
Forest Economics							
Farm Woodlands	80	-	185	3,025	-		3,290
Coop. Farm Forestry							
Indiana	18	200	882	-	1,462		2,562
Iowa	187	-	388	-	-		580
TOTAL	178	200	975	-	1,462		2,815
Work Fund, WPB							
Products-Supplies	3,260	100	2,905	23,428	-		29,690
Lumber Cameras	206	-	278	664	-		1,100
TOTAL	4,038	380	4,780	36,135	1,462		42,736

2550 25,000 7866 30,000
262 3543 1000 4289
2812 28,543 8866 34,289

INCLUDE ALLOTMENTS IN TOTAL COST.

Saturday March 18,1944

FINANCIAL REPORT
(Based on F.Y.1944 Budget)

1. Direct and indirect costs by financial projects

FINANCIAL PROJECT	Indirect project costs	Direct project costs	Total Costs
Forest Management	15,588	12.955	28543
~~Forxxxxxxx~~ Forest Economics	5,636	3230	8866
Sub-total	21,224	16.185	37,409
CENSUS	91	1109	1,200
Farm Forestry	—	2,812	2,812
Work Fund, WPB: Products-Supplies	4599	29.690	34,289
Grand Total	25.914	49.796	75,710

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2. Distribution of direct costs by main projects

Financial & work project	Car maintenance	Scientif. equipment& proj.sup.	Travel expenses other than cars	Salaries Reg.-Temp.		TOTAL
FM						
SILV	250	30	275	6280	—	6835
	—	—	—	420	—	420
MENS.						
Regen.	100	20	175	5405		5700
TOTAL	350	50	450	12105		12,955
FE						
FARM WOODLANDS	50	—	155	3025	—	3230
CFF						
IND.	18	200	582	—	1462	2262
IOWA	157	—	393			550
TOTAL	175	200	975	—	1462	2812
WORK FUND, WPB						
PRODUCTS-SUPPLIES	3260	100	2905	23,425	—	29,690
WORK FUND - LDR. CENSUS	200	—	275	634	—	1109
TOTAL	4035	350	4760	39,189	1462	49,796